

Summer Flounder Stock Assessment Workshop Workgroup (SAW WG)  
Model Comparison Workshop #2  
May 29 – 31, 2018  
Summary and Next Steps

The summer flounder SAW WG met to examine multiple modeling approaches under consideration for use in the 2018 SAW/SARC stock assessment.

Participants in person and on webinar (summer flounder SAW WG and others): Chuck Adams, Russell Brown, Jeff Brust, Steve Cadrin, Jessica Coakley, Tiffany Vidal Cunningham, Kiley Dancy, Liz Dusky, Kevin Friedland, Joe Langan, Chris Legault, John Maniscalco, Mark Maunder, Jason McNamee, Alicia Miller, Tim Miller, Charles Perretti, Eric Powell, Kirby Rootes-Murdy, Gary Shepherd, Pat Sullivan, Mark Terceiro, and Jim Weinberg

Overall SAW WG Recommendations:

- ❖ The combined sex, age structured assessment program (ASAP) was identified as the primary assessment model for the following reasons:
  - The selected model has been used for other stocks in the region and has the necessary components and diagnostics developed for presentation to the stock assessment review committee (SARC), and to provide summer flounder science to support management
  - There were not strong differences in model outputs (i.e., trends in SSB, F, R) between those models that incorporated additional sex-specific complexity and those that did not; therefore, gains from the additional sex-specific information were not shown, and did not warrant selection of a less developed model that required additional parameters and assumptions
  - Incorporating the revised Marine Recreational Information Program (MRIP) information will require substantial model diagnostic capability, and ASAP has those diagnostics fully developed
  - The models not selected as primary required further development and exploratory work to allow the SAW WG to determine that those models are complete and performing at the level of SARC standards
  - Outputs from the secondary models will be considered informative to the process, and will still contribute substantially to the assessment in a supportive manner
- ❖ The SAW WG agreed that updated information (i.e., 2017-2018 + revised MRIP), should be incorporated into the primary assessment model. Incorporating updated

data into supportive models is a lower priority and is secondary to other modeling tasks needed to further develop those secondary models.

### Primary Assessment Model (ongoing work)

The following describes specific ongoing work recommended by the SAW WG for the primary model that will be included as part of this assessment, to be completed prior to the fall Data/Model meeting.

#### ❖ ASAP (combined sex)

- Update model with most recent fishery dependent and independent information, including any revised MRIP estimates
- Explore the sensitivity of the time blocks used for selectivity for all the fleets
  - Consider commercial discard selectivity as two time-blocks versus the present configuration of three
  - Examine the sensitivity of the doming in the landings fleets (e.g. fix between 0.8 and 0.6)
- Explore inclusion of non-federal surveys under various configurations
  - Include the surveys as individual indices with length compositions
  - Consider hierarchical analysis to combine indices:
    - Combine the young-of-year (YOY) indices only; treat age1+ as individual indices
    - Combine by age vector (YOY, age1+) and/or by season
    - Use principal components analysis to do a priori bundling of indices (lower priority for work)
    - Develop methods for applying length compositions to combined indices
  - Obtain raw data needed from state agencies to develop empirical estimates of uncertainty
- Explore influence of the priors selected

### Supportive Assessment Models (ongoing work)

The following describes some specific ongoing work recommended by the SAW WG for the supportive and informative models that will be included as part of this assessment, to be completed prior to the fall Data/Model meeting.

❖ Overall

- Working paper(s) will be developed by SAW WG members that explore how sex-specific models might inform biological reference point development

❖ ASAP (by sex)

- Update model to match base case for primary model

❖ SAL (sex-at-length)

- Review data inputs to ensure units correctly specified and length frequencies correctly applied
- Integrate calculations for spawning stock biomass
- Incorporate selectivity time blocks (i.e., starting in 1982, 1995, and 2008)
- Develop methods to produce short term forecasts for use in management
- Complete a simulation self-test for the model
- Update with recent data after additional model development/diagnostics have been completed (lower priority for work)

❖ State-space

- Examine scale shift resulting from specification of four fleets versus two
  - Explore sensitivity of the doming in the landings fleets
  - Complete additional work to fine tune selectivity
  - Incorporate selectivity time blocks
- Develop methods to produce short term forecasts for use in management
- Complete simulation self-test for the model
- Update with recent data after additional model development/diagnostics have been completed (lower priority for work)

❖ Stock Synthesis (externally submitted working paper)

- M. Maunder - “Stock Synthesis Implementation of a Sex-Structured Virtual Population Analysis Applied to Summer Flounder”
- This paper was intended to inform model considerations
- Information from the current or an updated version of this working paper will be incorporated in the assessment report and referenced as supportive modeling work

## Other Modeling/Analytical Work (ongoing)

The following describes other ongoing work recommended by the SAW WG, to address aspects of the stock assessment terms of reference.

### ❖ VAST

- Explore the abundance/biomass scaling issue for the spring and fall
- Examine if the NEAMAP data (shorter, recent time-series) is causing the observed shift in abundance/biomass distribution in recent years
- Consider additional bottom temperature fields and other indicators of secondary productivity
- Review whether the day/night sampling is creating issues for the NEAMAP and NEC calibrations
- If data are sufficient, examine changes in abundance/biomass distributions by sex
- Explore the survey time series by region (e.g., North, South, etc.) to determine if observed northward shift is due to increases in North, decreases in South, or both
- If possible, consider whether annual VAST outputs could inform the selectivity block choices in other models

### ❖ Phenology Work (externally submitted working paper)

- J. Langan et al. - “Characterizing Changing Summer Flounder Phenology in Response to Climate in a Large Temperate Estuary”
- This paper was intended to inform ecosystem considerations
- Information from the current or an updated version of this working paper will be incorporated in the assessment report and referenced as supportive work

### ❖ Habitat Suitability Modeling

- Consider this work if submitted as a future working paper

### ❖ Plan-B

- Explore index and catch based approaches to specifying catch limits
- If possible, examine whether VAST modeling work could provide inputs to some of these data limited approaches